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324	7590	05/20/2009	EXAMINER	
JoAnn Villamizar Ciba Corporation/Patent Department 540 White Plains Road P.O. Box 2005 Tarrytown, NY 10591			EOFF, ANCA	
			ART UNIT	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/537,584	<b>Applicant(s)</b> DESTRO ET AL.	
	<b>Examiner</b> ANCA EOFF	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 19-32 is/are pending in the application.
- 4a) Of the above claim(s) 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-20 and 22-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 19-32 are pending in the instant application with claim 21 withdrawn from consideration. Claims 1-18 are canceled.
2. The foreign priority document No. 0228647.4 filed on December 9, 2002 in the United Kingdom was received and acknowledged.

### ***Continued Examination Under 37 CFR 1.114***

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 09, 2009 has been entered.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 depends on claim 19 and recites the limitation "the phenolic antioxidant". There is insufficient antecedent basis for this limitation in claim 19.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 19-20, 22-30 and 32 are rejected under 35 U.S.C. 103(a) as obvious over Fujikawa et al. (US Patent 5,698,373).

With regard to claim 19, Fujikawa et al. disclose a photosensitive composition comprising:

- a base resin (column 3, line 60), which is equivalent to the polymeric material of the instant application;
- a dye precursor which forms a dye upon irradiation of actinic light (column 4, lines 16-17), which is equivalent to the color former (b) of the instant application, and
- antioxidants, such as 4,4'-thio-bis (3-methyl-6-tert-butylphenol) (column 6, line 35), 2,2'-methylene bis (4-methyl-6-tert-butyl phenol) and 1,1,3-tris(2-methyl-4-hydroxy-5-tert-butylphenyl)butane (column 6, lines 48-51).

The 4,4'-thio-bis (3-methyl-6-tert-butylphenol) (column 6, line 35) is equivalent to the component (a) of the instant application, which is a compound comprising two hydroxyphenyl moieties, each carrying one bond to a linking group (-S-) and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

The 2,2'-methylene bis (4-methyl-6-tertbutyl phenol) is equivalent to the component (a) of the instant application, which is a compound comprising two

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hydroxyphenyl moieties, each carrying one bond to a linking group – CH<sub>2</sub>- (divalent aliphatic group with 1 carbon atom) and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

The 1,1,3-tris(2-methyl-4-hydroxy-5-tert-butylphenyl)butane is equivalent to the component (a) of the instant application, which is a compound comprising three hydroxyphenyl moieties, each carrying one bond to a trivalent aliphatic group with 4 carbon atoms and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

While Fujikawa et al. do not specifically teach the polymer material of the instant application, it would have been obvious to one of the ordinary skill in the art at the time of the invention to obtain such material, based on Fujikawa's teachings regarding the base resin, the dye precursor and the antioxidants which may form the polymeric material.

The photosensitive composition of Fujikawa et al. may form a layer with a thickness of 100-200 microns (column 4, lines 48-54). Therefore, the limitation for the polymer material in form of a film is met.

The limitations where the polymer material is "contained on or visibly below the surface of a protective clothing, mask or irradiation indicating tag", and "said protective clothing, mask or irradiation indicating tag undergoes an irreversible change upon exposure to irradiation" are merely intended uses and add no patentable weight to the claim.

Therefore, the photosensitive composition of Fujikawa et al. renders obvious the polymer material of the instant application.

With regard to claim 20, the limitation of “the irradiation is of higher energy than visible light and is selected from ultraviolet light, X-ray, gamma radiation and particle radiation” is merely an intended use and adds no patentable weight to the composition of claim 19.

With regard to claims 22-23 Fujikawa et al. disclose 4,4'-thio-bis (3-methyl-6-tert-butylphenol) (column 6, line 35), which is equivalent to the compound (A) of the instant application, wherein  $n=2$ ,  $R_1$  is  $-S-$ ,  $R_2$  is a methyl group,  $R_3$  is a tertiary  $C_4$  alkyl,  $R_4$  and  $R_5$  are hydrogen atoms.

The 2,2'-methylene bis (4-methyl-6-tertbutyl phenol) (column 6, lines 48-49) is equivalent to the compound (A) of the instant application, wherein  $n=2$ ,  $R_1$  is  $C_1$  alkylene,  $R_2$  is a methyl group,  $R_3$  is a tertiary  $C_4$  group,  $R_4$  and  $R_5$  are hydrogen atoms.

The 1,1,3-tris(2-methyl-4-hydroxy-5-tert-butylphenyl)butane (column 6, lines 49-50) is equivalent to the compound (A) of the instant application, wherein  $n=3$ ,  $R_1$  is a trivalent  $C_4$  group,  $R_2$  is a methyl group,  $R_3$  is a tertiary  $C_4$  group,  $R_4$  and  $R_5$  are hydrogen atoms.

With regard to claim 24, Fujikawa et al. further disclose that the dye precursors may be spiropyrans, fluorans or triarylmethane dyes (column 4, lines 16-28).

With regard to claim 25-27, Fujikawa et al. disclose that the antioxidant is preferably in the range of 1.0 to 20 parts by weight, preferably 2 to 10 parts by weight per 1 part by weight of the dye precursor (column 7, lines 4-6) and the dye precursor is present in an amount of 0.001 to 5 parts by weight relative to the whole photosensitive composition (column 4, lines 39-47).

With regard to claim 28, Fujikawa et al. disclose that the base resin may be a polyester, which is a transparent thermoplast as evidenced by Killey (US Patent 5,342,672) in column 11, lines 15-16.

With regard to claim 29, Fujikawa et al. disclose that the base resin may be polyamides or saturated polyesters (column 3, lines 60-61).

With regard to claim 30, Fujikawa et al. disclose a photosensitive composition comprising:

a base resin (column 3, line 60), which is equivalent to the polymeric material of the instant application;

- a dye precursor which forms a dye upon irradiation of actinic light (column 4, lines 16-17), which is equivalent to the color former (b) of the instant application, and

- antioxidants, such as 4,4'-thio-bis (3-methyl-6-tert-butylphenol) (column 6, line 35), 2,2'-methylene bis (4-methyl-6-tert-butyl phenol) and 1,1,3-tris(2-methyl-4-hydroxy-5-tert-butylphenyl)butane (column 6, lines 48-51).

The 4,4'-thio-bis (3-methyl-6-tert-butylphenol) (column 6, line 35) is equivalent to the component (a) of the instant application, which is a compound comprising two hydroxyphenyl moieties, each carrying one bond to a linking group (-S-) and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

The 2,2'-methylene bis (4-methyl-6-tertbutyl phenol) is equivalent to the component (a) of the instant application, which is a compound comprising two hydroxyphenyl moieties, each carrying one bond to a linking group - CH<sub>2</sub>- (divalent

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aliphatic group with 1 carbon atom) and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

The 1,1,3-tris(2-methyl-4-hydroxy-5-tert-butylphenyl)butane is equivalent to the component (a) of the instant application, which is a compound comprising three hydroxyphenyl moieties, each carrying one bond to a trivalent aliphatic group with 4 carbon atoms and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

While Fujikawa et al. do not specifically teach the polymer material of the instant application, it would have been obvious to one of the ordinary skill in the art at the time of the invention to obtain such material, based on Fujikawa's teachings regarding the base resin, the dye precursor and the antioxidants which may form the polymeric material.

Fujikawa et al. further disclose that a photosensitive layer may be formed on a metallic plate or on a plastic film (column 4, lines 48-51), equivalent to the step of placing a sample of polymer material in site to be controlled of the instant application.

The exposure is then made through a negative film and an imaged area is colored or through a positive plate so there is formed a pattern in which a non-imaged area is colored while an image area is not colored (column 5, lines 1-5).

Fujikawa et al. further disclose that the color tone may be measured by a Macbeth densitometer (column 9, lines 27 and 42), which is equivalent to the step of checking the color of the instant application.

With regard to claim 32, the limitation of "the irradiation is from ultraviolet laser or ultraviolet lamp radiation of 285 to 400 nm, electron radiation, X-ray and gamma



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radiation” is merely an intended use and adds no patentable weight to the composition of claim 20.

8. Claims 19, 20, 22-24 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (US Patent 4,431,769).

With regard to claim 19, Yoshida et al. teach a binder composition suitable for heat-sensitive recording paper or light-sensitive recording paper (column 2, lines 52-54 and column 5, lines 17-22), wherein said binder composition comprises a binder, a leuco dye and a color developer (column 5, lines 37-39).

The color developer of Yoshida et al. may be a phenolic compound, such as 2,2'-methylene-bis (4-methyl-6-tert-butyl phenol) (column 6, line 34), which is equivalent to the component (a) of the instant application, which is a compound comprising two hydroxyphenyl moieties, each carrying one bond to a linking group – CH<sub>2</sub>- (divalent aliphatic group with 1 carbon atom) and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

The binder of Yoshida et al. is a polymer (see column 3, lines 36-50) and it is equivalent to the polymeric material of the instant application.

The leuco dyes of Yoshida et al. may be triphenylmethane-based dyes and fluoran dyes (column 5, lines 45-65) and are equivalent to the color formers (b) of the instant application.

While Yoshida et al. do not specifically teach the compositions of the instant application, it would have been obvious to one of ordinary skill in the art at the time of

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the invention to obtain such composition, based on Yoshida's teaching regarding the components of the binder composition.

Yoshida et al. show that the binder composition may form a layer (column 9, lines 4-7). Therefore, the limitation of the polymer material in form of a film is met.

The limitations where the polymer material is "contained on or visibly below the surface of a protective clothing, mask or irradiation indicating tag", and "said protective clothing, mask or irradiation indicating tag undergoes an irreversible change upon exposure to irradiation" are merely intended uses and add no patentable weight to the claim.

Therefore, the binder composition of Yoshida et al. renders obvious the polymer material of the instant application.

With regard to claim 20, the limitation of "the irradiation is of higher energy than visible light and is selected from ultraviolet light, X-ray, gamma radiation and particle radiation" is merely an intended use and adds no patentable weight to the composition of claim 19.

With regard to claims 22-23, Yoshida et al. disclose that the color developer may be 2,2'-methylene bis (4-methyl-6-tertbutyl phenol) (column 6, line 34), which is equivalent to the compound (A) of the instant application, wherein  $n=2$ ,  $R_1$  is  $C_1$  alkylene,  $R_2$  is a methyl group,  $R_3$  is a tertiary  $C_4$  group,  $R_4$  and  $R_5$  are hydrogen atoms.

With regard to claim 24, the leuco dyes of Yoshida et al. may be triphenylmethane-based dyes and fluoran dyes (column 5, lines 45-65)

With regard to claim 32, the limitation of “the irradiation is from ultraviolet laser or ultraviolet lamp radiation of 285 to 400 nm, electron radiation, X-ray and gamma radiation” is merely an intended use and adds no patentable weight to the composition of claim 20.

9 Claims 19-20 and 22-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashihara et al. (US Patent 5,824,715) in view of Yoshida et al. (US Patent 4,431,769).

With regard to claim 19, Hayashihara et al. disclose a marking composition comprising:

- an energy ray curing resin (abstract), equivalent to the polymer material of the instant application;
- a color developer (abstract), and
- a leuco dye , such as a fluoran-based dye (abstract and column 4, lines 38-60), equivalent to the color former of the instant application.

Hayashihara et al. further comprise that the marking composition may be applied on different materials, including paper (column 7, lines 16-23).

Hayashihara et al. further disclose that the color developer are phenolic-type compounds (column 5, lines 5-19) but fail to disclose a color developer having the structure of the compound (a) of the instant application.

Yoshida et al. teach a binder composition suitable for heat-sensitive recording paper or light-sensitive recording paper (column 2, lines 52-54 and column 5, lines 17-

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22), wherein said binder composition comprises a binder, a leuco dye and a color developer (column 5, lines 37-39).

The color developer of Yoshida et al. may be a phenolic compound, such as 2,2'-methylene-bis (4-methyl-6-tert-butyl phenol) (column 6, line 34).

The leuco dyes of Yoshida et al. may be triphenylmethane-based dyes and fluoran dyes (column 5, lines 45-65).

The marking composition of Hayashihara et al. and the binder composition of Yoshida et al. comprise the same type of compounds: binder polymers, a color former such as a leuco dye and a phenolic color developer.

As Yoshida et al. shows that 2,2'-methylene bis (4-methyl-6-tert-butyl phenol) may be used as color developer for fluoran dyes, it would have been obvious to one of ordinary skill in the art at the time of the invention to use 2,2'-methylene bis (4-methyl-6-tert-butyl phenol) as color developer in the composition of Hayashihara et al., with a reasonable expectation of success.

The 2,2'-methylene bis (4-methyl-6-tertbutyl phenol) is equivalent to the component (a) of the instant application, which is a compound comprising two hydroxyphenyl moieties, each carrying one bond to a linking group – CH<sub>2</sub>- (divalent aliphatic group with 1 carbon atom) and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

Hayashihara et al. shows that the marking composition may form a layer with a thickness of 10-100microns (column 7, lines 6-9) so the limitation of a polymer material in form of a film is met.

The limitations where the polymer material is “contained on or visibly below the surface of a protective clothing, mask or irradiation indicating tag”, and “said protective clothing, mask or irradiation indicating tag undergoes an irreversible change upon exposure to irradiation” are merely intended uses and add no patentable weight to the claim.

Therefore, the photosensitive composition of Hayashihara modified by Yoshida is equivalent to the polymer material of the instant application.

With regard to claim 20, the limitation of “the irradiation is of higher energy than visible light and is selected from ultraviolet light, X-ray, gamma radiation and particle radiation” is merely an intended use and adds no patentable weight to the composition of claim 19.

With regard to claims 22-23, the 2,2'-methylene bis (4-methyl-6-tertbutyl phenol) of Yoshida et al. (column 6, line 34) is equivalent to the compound (A) of the instant application, wherein  $n=2$ ,  $R_1$  is  $C_1$  alkylene,  $R_2$  is a methyl group,  $R_3$  is a tertiary  $C_4$  group,  $R_4$  and  $R_5$  are hydrogen atoms.

With regard to claim 24, Hayashihara et al. further disclose that the leuco dyes may be fluoran-type dyes (column 4, lines 45-55).

With regard to claim 25, Yoshida et al. disclose that the color developer is added in an amount between 1-10 parts by weight, preferably 2-5 parts by weight per part by weight of the color former (column 6, lines 54-56).

With regard to claim 26-27, Hayashihara et al. further disclose that the leuco dyes are comprised in the composition in an amount between 7 and 45 wt.% , based on

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the energy ray curing resin (column 5, lines 1-4). However, Hayashihara et al. further disclose that if the amount of leuco dye is too small, it is impossible to obtain a clear-cut mark and if the dye is used in an excess amount, no further improvement of clearness of the mark formed is provided (column 4, line 65-column 5, line 1).

This shows that the amount of leuco dye in the marking composition of Hayashihara et al. is a result-effective variable and therefore is optimizable.

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (MPEP 2144.05- II Optimization of Ranges)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the amount of leuco dye in the marking composition of modified Hayashihara, in order to obtain a clear-cut mark.

With regard to claims 28-29, Hayashihara et al. further disclose that the composition comprises polyester acrylate oligomers, equivalent to the polyacrylic polymeric material of the instant application.

With regard to claims 30-31, Hayashihara et al. disclose a marking composition comprising:

- an energy ray curing resin (abstract), equivalent to the polymer material of the instant application;
- a color developer (abstract), and

- a leuco dye , such as a fluoran-based dye (abstract and column 4, lines 38-60), equivalent to the color former of the instant application.

Hayashihara et al. further comprise that the marking composition may be applied on different materials, including paper (column 7, lines 16-23).

Hayashihara et al. further disclose that the color developer are phenolic-type compounds (column 5, lines 5-19) but fail to disclose a color developer having the structure of the compound (a) of the instant application.

Yoshida et al. teach a binder composition suitable for heat-sensitive recording paper or light-sensitive recording paper (column 2, lines 52-54 and column 5, lines 17-22), wherein said binder composition comprises a binder, a leuco dye and a color developer (column 5, lines 37-39).

The color developer of Yoshida et al. may be a phenolic compound, such as 2,2'-methylene-bis (4-methyl-6-tert-butyl phenol) (column 6, line 34).

The leuco dyes of Yoshida et al. may be triphenylmethane-based dyes and fluoran dyes (column 5, lines 45-65).

The marking composition of Hayashihara et al. and the binder composition of Yoshida et al. comprise the same type of compounds: binder polymers, a color former such as a leuco dye and a phenolic color developer.

As Yoshida et al. shows that 2,2'-methylene bis (4-methyl-6-tert-butyl phenol) may be used as color developer for fluoran dyes, it would have been obvious to one of ordinary skill in the art at the time of the invention to use 2,2'-methylene bis (4-methyl-6-

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tert-butyl phenol) as color developer in the composition of Hayashihara et al., with a reasonable expectation of success.

The 2,2'-methylene bis (4-methyl-6-tertbutyl phenol) is equivalent to the component (a) of the instant application, which is a compound comprising two hydroxyphenyl moieties, each carrying one bond to a linking group – CH<sub>2</sub>- (divalent aliphatic group with 1 carbon atom) and each carrying 2 alkyl substituents (methyl and tert-butyl groups).

Hayashihara et al. further disclose that the marking composition is coated on a substrate to be marked, such as a plastic films and paper(column 7, lines 6-23). This step is equivalent to the step of placing the polymer material in the site to be controlled of claim 30 of the instant application.

Hayashihara et al. further disclose that the marking composition can be used for marking the maker's name, contents, date of production, lot number, etc. on the surfaces of the sheets, packaging sheets, cards, labels (column 1, lines 11-20 and column 7, lines 24-29 ). A label having the above-mentioned marking composition applied thereon is equivalent to the tag having the polymer material comprising components a) and b) in form a film on a surface thereof as required by claim 31 of the instant application.

Hayashihara et al. disclose that the marking composition may be exposed with energy rays, (column 3, lines 32-34) and the developed color density of each exposed test piece is measured after irradiation/exposure (column 9, lines 59-63). This step is equivalent to the step of checking the color of the sample of the instant application.



Hayashihara et al. disclose that the marking compositions lead to clear-cut black marks (column 8, lines 48-49), equivalent to the irreversible color change of the instant application.

With regard to claim 32, the limitation of “the irradiation is from ultraviolet laser or ultraviolet lamp radiation of 285 to 400 nm, electron radiation, X-ray and gamma radiation” is merely an intended use and adds no patentable weight to the composition of claim 20.

### ***Response to Arguments***

9. Applicant's arguments, see page 20 of the Remarks filed on March 09, 2009, with respect to the rejection of claims 30 and 31 under 35 USC 112-2<sup>nd</sup> paragraph have been fully considered and are persuasive. The above-mentioned rejection has been withdrawn.

Applicant's arguments, see pages 23-24 of the Remarks filed on March 09, 2009, with respect to the rejection of claims 19-20 and 22-32 under 35 USC 103(a) over Hayashihara et al. (US Patent 5,824,715) in view of Greer et al. (US Pg-Pub 2002/0057881) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Hayashihara et al. (US Patent 5,824,715) in view of Yoshida et al. (US Patent 4,431,769).

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10. Applicant's arguments filed on March 09, 2009 with regard to the rejection of claims 19-20 and 22-30 under 35 USC 102(b)/103(a) over Fujikawa et al. (US Patent 5,698,373).have been fully considered but they are not persuasive.

On page 21 of the Remarks, the applicant argues that the essential ingredients of Fujikawa et al. are monomers, a photopolymerization initiator and a dye precursor.

The examiner agrees that the above-mentioned components as the essential ingredients of Fujikawa et al.However, the examiner would like to show that the dye precursor of Fujikawa et al. may be spiropyrans, fluoran dye precursors and bisimidazoles (column 4, lines 16-31) and are equivalent to the color formers (b) of the instant application.

The composition may further comprise an antioxidant, such as 4,4'-thio-bis(3-methyl-6-tbutylphenol), 2,2'-methylene bis(4-methyl-6-t-butylphenol) or 1,1,3-tris-(2-methyl-4-hydroxy-5-t-butylphenyl)butane (column 6, lines 23-49), which is equivalent to the compound (a) of the instant application.

The composition may further comprise a base resin (column 3, lines 59-67), which is equivalent to the polymer material of the instant application.

As claim 19 contains the transitional phrase "comprising", additional components of the composition are not excluded. Therefore, the composition of Fujikawa et al. which also comprises monomer and a photopolymerization initiator still meets the limitations of the claim.

The applicant further argues that there is no suggestion that the phenolic anti-oxidants can be used with a dye precursor for developing color.

The examiner agrees that such function is not taught. However, the components are clearly taught by Fujikawa et al. to be part of the composition.

The applicant further argues that the examiner has selected from a laundry list of ingredients, one which fits the present claim limitations but there is no guidance and direction from Fujikawa which teaches with enough specificity the claimed combination.

The examiner agrees that Fujikawa et al. do not give an example of a composition comprising the components of the instant application. Therefore, the rejection under 35 USC 102(b) is withdrawn.

However, the components of the composition are clearly taught by Fujikawa et al. and one of ordinary skill in the art at the time of the invention would have been motivated to obtain the composition of the instant application, based on Fujikawa's teachings regarding the components of the composition. The rejection under 35 USC 103(a) is maintained.

On pages 21-22 of the Remarks, the applicant argues the examiner's position "The limitations that the polymer material is in the form of a fiber, textile, nonwoven or film and is contained on or visibly below the surface of a protective clothing, mask or irradiation indicating tag" and "said protective clothing, mask or irradiation indicating tag undergoes an irreversible change upon exposure to irradiation are merely intended uses and add no patentable weight to the claim". The applicant argues that the limitation "in the form of fiber, textile, nonwoven or film is contained on or visibly below the surface of a protective clothing, mask or irradiation indicating tag" is a structural limitation.

The applicant further argues that the phrase “protective clothing, mask or irradiation indicating tag” appears again in the body of the claim and it is an indication that the polymer material is a protective clothing, mask or irradiation indicating tag.

If claim 19 is interpreted as "a polymeric material, which is a protective clothing, mask or irradiation indicating tag", as the applicant suggests, the use of the polymeric material as "protective clothing, mask or irradiation indicating tag" is still an intended use and adds no patentable weight to the claim. The photocurable composition of Fujikawa et al. comprises all the components of the polymeric material of the instant application and, therefore, it is equivalent to it.

On page 22 of the Remarks, the applicant argues that Fujikawa et al. teach the use of phenols as stabilizers and teaches that the sulfur-based antioxidants (such as 4,4'-thio-bis (3-methyl-6-tert-butylphenol) are used as dark coloration preventing agents.

The applicant argues that this is the opposite of the applicant's teaching-of using phenols as color developing agents in combination with a color former when exposed to radiation.

The examiner would like to show that the compounds such as 4,4'-thio-bis 3-methyl-6-tert-butylphenol are used for prevention dark coloration during storage at a high temperature or during storage for a long period in a dark place (column 6, lines 65-67). This teaching refers to *storage* and it is not in opposition to the teaching of the instant application regarding color forming during *exposure*.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANCA EOFF whose telephone number is (571)272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. E./  
Examiner, Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795